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Rhypodes townsendi n. sp. described and drawn by Alan Eyles from holotype female. Found in Fiordland.

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Editorial change at the Weta

Patrick Walsh is joining the outflow of scientists from New Zealand and heading back to Ireland. I have somehow landed the job of Weta editor, so until I can find some other unsuspecting entomologist, please send material for the Weta to me. Note that I would much prefer it in electronic form (versions up to and including Word '97), as then transcription errors from my antiquated and somewhat idiosyncratic scanner (and/or my clumsy fingers) are less likely.

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Please note office-bearer changes - inside front cover.

A heartily thank you to all previous office-bearers for their efforts in holding our society and discipline together as a convivial group through strange and stormy times. In particular we wish to extend our undying gratitude to Susan Millar who, as secretary-forever ensured the society would function forever. Thank you Susan thank you.

A warm welcome to Pauline Wilson who has offered to take over the secretarial role, we look forward to working with you.

Annual reports tabled at the Entomological Society AGM, April 1999

President's Report 1999. Pat Dale

The year has seen some progress on several fronts, and stagnation on others. There have also been some occasions for sadness.

We have received news of the death of three of our longstanding members. Brenda May, to whom we awarded the fellowship of the Society last year for her for her outstanding contribution to New Zealand entomology, and for her continuous and compassionate interest in its activities and membership, passed away last October. Dave Gaskin, whom some of you will remember as an ardent lepidopterist (and whale watcher) who went from Massey University to Guelph in Canada, has also died. And just last month we learned of the death of Errol Valentine, a gentle and proficient hymenopterist and long- time supporter of the Society, he was also editor of the "N Z Entomologist" from 1962 to 1968. As head of the biological control section of the former Entomology Division, Errol played a big part in the development of biological control in this country, and he also helped to establish the reputation of the "Entomologist" as a journal with international standing. Our sympathy goes out to the relatives of all three.

There seems to be an ongoing trend towards the amalgamation of Societies such as ours, with a view to increasing political clout and reducing running costs. Peter MacGregor represented us at a meeting in Palmerston North convened by the Institute of Agricultural Science, aimed at setting up such an "umbrella organisation" for the "primary resources" societies. It was never quite certain why the Royal Society could not fulfil such a function, but the production orientated organisations appear to have little faith in the Royal Society, and indeed know little about it. On the other hand the idea of the Royal Society, or any other body, speaking with one voice on behalf of the plethora of opinions represented by the primary resource related societies, seems a forlorn hope, and I have little confidence that a common secretariat would achieve a reduction in costs either. The matter is not yet concluded so it is still open for discussion.

A somewhat similar trend, towards a joint conference with the Australian Entomological Society, has made some progress. At one level there has been agreement between our two executives that we should keep our members informed of one another's conference organisation and programmes, so that those who have the means could attend whenever the programme suited them. And there is general approval from the AES that they might host a joint conference in 2001, perhaps on the topic of "How different are we anyway?"

The question could be discussed at various pure and applied levels, in ecological, biogeographic, taxonomic or other terms. There remains the problem of location and time of year, and the possibility that some NZers would miss out on a conference altogether in 2001. Nothing is ever simple.

The Australians have also raised the question of whether we would be prepared to support an Australian bid for the International Congress of Entomology in 2004. This too requires some thought.

Another initiative aimed at increasing our exposure to the world has been Gary Barker's effort towards establishing a web page for the Society. This, in association with the Royal Society, is close to being realised. We should soon be able to offer via the net, our new information sheet, or newly redesigned membership application form, information about members and their interests from our recent survey of members, (and subject to their consent), as well as Branch notes and events, and perhaps even some publications for downloading.

Among minor items dealt with during the year has been a brief flurry of correspondence with Helen Williamson of the BBC, assisting with the organisation of a New Zealand programme for "Tomorrow's World", mainly looking for new and innovative techniques and technology. 1 have had no feedback on progress.

1 have also written to the MoE about errors in their "State of the New Zealand Environment", in which they refer to grass grub as a moth and porina as a weevil. God preserve us.

Also on the state of the environment, several of our members have participated in the Biodiversity workshops being staged around the country. We hope to learn the outcome in due course.

It is my pleasant duty to thank all the officer holders and others who have kept the Society running for another year. No amount of umbrella organisation could replace them or outdo their tireless dedication. We offer our sincere gratitude to them all.

Annual Report

The 1998 Entomological Society Conference, was held at Flock House, Bulls, from Monday 20 to Wednesday 22 April. There were over seventy people registered for the conference. A symposium on "Diversity of Spiders" occupied most of the Wednesday programme. This was opened by a wide-ranging overview given by Dr R.R. Forster - "Fifty years of New Zealand Arachnology - Yesterday and Today". Dr L. Forster also presented two papers in the symposium. An interesting mixture of general papers were also presented, and a good range of posters shown.

At the close of the conference the first of the Bruce Given Awards were made for the best student paper and best student poster presented at the Conference. Awards for the runner up in each category were also made.
Four Research Grants were awarded in 1998. Four K. J. Fox Awards were made. Clare Butcher Memorial Awards were presented at Science Fairs in Christchurch, Dunedin and Auckland.

At the Annual General Meeting of the Society, held on 20 April, in conjunction with the conference, Mrs Brenda May was made a Fellow of the Entomological Society, in recognition of the contribution she had made to Entomology generally as well as to the Society. It was with sadness that the Brenda's many friends and colleagues heard of her sudden death in October 1998.

Publications: "New Zealand Entomologist" Vol 21, 1998. "Weta" Vol 21, No 1, 1998. Proceedings of the 1998 conference.

There are 250 members at present.

Editor's Report

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Volume 21 of the New Zealand Entomologist was published on 23 December 1998 containing 10 articles and 112 printed pages. 1 apologise for the lateness of this issue but the pressure of work made it impossible to meet my September target. For the first time in my experience more papers were submitted than could be accommodated and so five manuscripts have been held over for volume 22. Manuscripts are dealt with in the order in which they are received but those requiring a lot of editorial work and revision will naturally end up moving down the queue and may become displaced by better prepared MSS.

Because our printer of some years, Wright and Carman Ltd, went into receivership last year 1 had to look for a new printer. I'm grateful to Pat Dale for getting quotations. In the end the journal was typeset by a group of former employees of Wright and Carman (Type to Disk, Upper Hutt) and production was managed by Euan Campbell, also formerly of Wright and Carman.

1 am pleased that Dianne Gleeson joined the Editorial Board this year. 1 am grateful to members of the Editorial Board and referees who have assisted with the production of volume 21.

1 intend to make a few changes in the journal layout this year. It is time to replace Des Helmore's cover design (his suggestion) which has served us well since 1979, and to make some typographical changes to take the journal into the new millennium. The paper size will probably remain the same in deference to those librarians who can't abide a shelf of unevenly sized volumes of a single title. 1 also intend to publish a list of referees (with their permission) every second volume as seems common practice in a number of journals. By doing this 1 hope to dispel the myth still held by a number of people that articles are not refereed, as well as giving an indication of the calibre of referees used. 1 believe that these changes are necessary. Appearance and image are important qualities these days (for better or worse), and since the journal is the flagship publication for the Society 1 believe that we need to keep it looking fresh, contemporary and professional if we are to attract quality articles for publication. Change is not new for the Entomologist and the journal has progressed since the first volume in 1951. At its inception, the New Zealand Entomologist fulfilled the role that the Weta does today. Many of the articles published in the early volumes would not be considered for the Entomologist now. Rather, they would be appropriate for

the Weta. 1 am faced with several contributions each year which lack the scientific rigour for publication in a refereed journal, yet nevertheless contain information with sufficient merit to warrant publication somewhere. These MSS also are usually longer than typical articles in the Weta to date. 1 think that there is a good case for increasing the scope of the Weta to accommodate such articles. It is time for the Society, as it considers its future, to determine and define the types of publications it produces and to communicate this to members.

Report of the Sales Secretary

Marleen Boyd
3/11 Brothers St., New Windsor, Auckland.

Casual sales of publications were down by nearly $300.00 over 1997. Bulletin 9 became out of print during the year. Plans to revise the Aquatic insects title were well under way by the end of 1998 with plans to print copies early in 1999. The revision of the Common names of New Zealand insects is also well under way and 1 look forward to selling both titles in 1999.

A further four identifiable orders of titles went to school sales as a result of the distribution of Bulletin 10 during 1997.

Manaaki Whenua Press (Landcare Research, Lincoln) and Bennets Books (Palmerston North) continue to bulk order titles, especially DSIR Bulletin 163 (Preparation and curation of insects) and the ESNZ Bulletins.

1 wish to thank all ESNZ members who over the year have sold publications on behalf of the society at conference or through their work outlets.

The need to consider storage of publications no longer seems to be an issue with the Mt Albert Research library, but 1 would encourage the Executive to keep the item of storage space on their agenda in case the issue arises in the future.

$US exchange rates stabilised during the year at around.53 cents, this ensured a good rate for the overseas subscriptions to New Zealand Entomologist. 1 have not increased the 1999 or 2000 subscription price for New Zealand Entomologist. Should the Executive plan to produce a larger volume in the year 2000 then the subscription price may need to be adjusted should the $US rate decrease.

Overall the year was very quiet mainly due to the late printing of New Zealand entomologist vol. 21. 1999 should be quite busy with the two new bulletins and vol. 22 of New Zealand entomologist.

To date most of the invoices for New Zealand Entomologist vol. 21, 1998 have been paid by subscribers with only 26 standing order invoices not paid. There are currently 170 standing orders for the journal.

Report of the Conservation Subcommittee. Chris Green

Over the past year there were two requests from MAF Regulatory Authority (Animal imports) for comment on cases where exotic organisms were proposed for importation. Comments supplied on each of these are summarised below.

1 . Application to introduce (release) the gall fly Urophora stylata into New Zealand for biological control of Scotch thistle, Cirsium vulgare.

The application was made by the Auckland Regional Council. From the evidence supplied in the Importation Impact Assessment (IIA) with the application it appeared that the gall fly was unlikely to pose a threat to native plants through host switching. The IIA did not provide sufficient information on the likely effects of competitive exclusion of native species to allow an assessment of the likely effects of native species which may utilise Scotch thistle. However, it was considered that such exclusion was unlikely to be significant in its effects on native species. Therefore no specific problems were anticipated from the proposed introduction. MAF approved the application in November 1998.

2. Application to introduce (release) the exotic gall wasp Aulacidea subterminalis into New Zealand for biological control of the hawkweed Hieracium pilosella.

A range of hawkweeds have been identified as major problem weeds in New Zealand pasture and Hieracium pilosella is the most widespread problem species. Test results in the IIA indicated that the gall wasp A. subterminalis was restricted to the genus Hieracium, subgenus Pilosella, and showed a strong preference for H. pilosella and H. aurantiacum, and was unlikely to pose a threat to other plant species. Very few native invertebrates are known to feed on the hawkweed thus it was considered unlikely that the gall wasp would have a significant adverse impact by competitively excluding native insects. MAF approved the application in November 1998.

Following the processing of these two applications the MAF Regulatory Authority relinquished its responsibility for assessing proposed iinportation of exotic organisms to the Enviromnental Risk Management Authority (ERMA).

Since that change-over of responsibility the Society has not been requested to comment on any proposed introductions of exotic invertebrates. Immediately prior to the AGM I learnt, through the President, Pat Dale, that ERMA appears to have approved an application "to import into containment seventy-one (71) species of tropical butterflies for exhibition and breeding."

The ERMA website indicates that the application was made on 4 December 1998 and the decision notified on 20 January 1999.

I would be interested to know whether other members of the Society have been asked by ERMA to comment on this or other applications. Previously requests for the importation of live butterflies have been refused by MAF due to potential adverse effects on horticultural and native plants. I am not familiar with the circumstances of the above application but will be making inquiries of ERMA after the Conference and see if the Society can be of assistance in providing comment on such applications in the future.

Auckland Branch

N. A. Martin, 97 Astley Avenue, New Lynn, Auckland. E-Mail: martinn@crop.cri.nz

The Auckland Branch of the Entomological Society continues to thrive financially though the fully paid up membership has fallen to 57. It is with sadness that we note the death during the year of three members or former members, Murray Jones, Brenda May and Errol Valentine.

This year we tried to notify members about meetings by email. When it works it is wonderful but when it fails it is terribly frustrating. Let us hope that our systems are not upgraded again. Our member in England now receives the newsletters by email.

Evening meetings with a guest speaker were held every month between February and November except April and the annual dinner in September. The branch is still in a healthy financial state. Subs were kept at $15 again this year, and $10 for parent body members or those not wishing to receive THE WETA. Meeting attendance averaged 23.4 a little higher than last year's average of 22.8. Field trip attendance is extremely low, though rain could be used as an extenuating circumstance several times during the last 12 months.

A feature of the year was the number of scheduled talks that were cancelled and replaced or were rescheduled. Several times the audience found themselves listening to something quite different from the programmed item. There was a very diverse programme. We had a talk about invertebrates on roses with hints about pest control from Karyn Froud , while Peter Cameron and Jim Ray talked about Pentatomidae and especially green vegetable bug, which Jim has been studying in Gisborne for his PhD. Simon Fowlers entomological exploits on St Helena and photos were much enjoyed. In contrast Nicholas Martin showed slides of New Zealand road verges and habitats that favour the biodiversity of indigenous and exotic invertebrates.

As if anticipating the recent discovery of Australian mosquitos, Mark Bullians talked about Mosquitoes in New Zealand: aspects of quarantine and associated diseases. Much less scary was the talk by Richard Leschen on the natural history of fungus feeding beetles and Robert Hoare's presentation on moths in New Zealand was the subject of much discussion the next day.

The 17th Annual dinner of the Auckland Branch was very successful thanks to the organisation of Grace and Danny Hall. Held again at the Avondale Ryders' Museum, with no official speaker, but Kate Senner told an impromptu entomological story.

The best attendance for a field trip this year was 12 for a weekend in March at Rangitoto Station. This is a Native Forest Restoration Trust property in the King Country. It adjoins other protected areas and is a base for a kokako rehabilitation programme. The Auckland Branch has visited the property before and is compiling a list of insects to add to the dozen listed in the natural history leaflet about the area.

The Annual General Meeting was held in February and set the committee the task of finding ways to promote entomology in the Auckland area.. The AGM was followed by a talk by Nicholas Martin about insects and mites on tomatoes. This featured life cycles of whitefly and the Encarsia parasites. The committee this year includes:

Peter Maddison (chairman), Nicholas Martin (secretary), Pat Dale (treasurer). Garth Allen, Grace Hall, Nick Beveridge, Rosa Henderson, Chris Green, Peggy Herbert, Olwyn Green, Pat Sunde, Dianne Gleeson, Rudy Sunde, Kate Senner

Visitors to Auckland during the year are more than welcome to attend Auckland Branch meetings, field trips and other activities. Contact Nicholas Martin for details, ph. (09) 815 4200 ext 7089, or E-Mail: martinn@crop.cri.nz

Otago Branch Annual Report

Brian Patrick Otago Museum, P.O. Box 6202, Dunedin

We have had many and varied speakers at meetings this year. The meetings have been held at the Otago Museum and have been well attended. Additionally a Christmas barbarcue and several field trips were held.

Indoor meetings Otago member John Nunn spoke on his personal collecting techniques and experiences of collecting Coleoptera throughout New Zealand. This was a highly entertaining account of how he operates. Malcolm Foord gave an interesting talk and slide show on the insects and of life in general in Nigeria, from his experience working there for UNESCO.

Anthony Harris spoke on his field-work in Otago and Fiordland over the current summer. He did extensive work on various solitary wasp species in the Sphecidae. He particularly noted a strange prey item that was a small fly in the genus Chelipoda of the family Empididae. It had grotesquely enlarged raptorial forelegs reminiscent of those of a preying mantis. Brian Patrick gave a talk on Notoreas, a genus of day flying moths. He concentrated his talk on the nine coastal species, several of which are threatened with extinction, and spoke of the species revision that he and Robin Crow have done. Steve Trewick from the University of Otago Zoology Department addressed us on his research on Onychophora. This was followed by a lively debate on systematic method. Mary Morgan-Richards of the University of Otago Zoology Department gave a detailed talk on her research on all the various ground wetas found in various habitats in New Zealand. A social meeting was held at Mike and Sandy Legge's home.

Field Trips

Anthony Harris, led two expeditions to the glowworms at Nicol's Creek, in Leith Valley, as part of the Museum's International Science Festival. A field trip to Karitane beach to look for Katipo spiders produced many specimens. While a follow-up trip to Warrington Beach found none. Penguin burrows and their insect inhabitants were the subject on a field trip to the Otago Peninsula.

We have had a reasonable turnout of members to our meetings and the number of members has been boosted by many enthusiastic students from the Zoology Dept. Currently we have 44 members, with several resignations and several new members joining within the last year.

Off-Road Entomology - Olwyn Green

One doesn't normally expect a conference field trip to have much element of danger in it, but when 23 Entomologists set out in a chartered bus to Hinewai Reserve on Banks Peninsula, on 6 April 1999, they weren't to know they'd be risking their lives.

After a successful day with a warm welcome and cuppa waiting, a fine spell in the weather, and a pleasing number of insects about, we headed back to town. As we left Hinewai, the bus driver told us a very good joke about St Peter and a bus driver who won favours at the Pearly gates because he had his passengers all praying. Something to think about as we slowly and carefully travelled around the very steep and narrow ridge roads with no crash barriers. Only about ten minutes later, our bus gracefully tipped off the edge of the road and came slowly to rest at about 45° over the shoulder. Perhaps the scariest part was the second little shudder it gave as it settled, while we all held our breath wondering whether it would roll. There was low vegetation on the side of the road, but it was a very long way down to the bottom of the valley. It seemed that the edge of the road had simply broken away under the left side of the bus.

Our driver first said a heartfelt "I am so sorry!", then calmly informed us of the emergency exit at the back window, and urged us to go one at a time. Pierre knocked the window right out, which was no mean feat, then gallantly offered his knee as a foothold for each of us to climb out. Grace and others first out helped the rest of us slide down onto the sloping and crumbling shoulder of the road. Meanwhile our driver helped those nearest to leave the bus via the window on his side. Which as it happens was even higher above the road, the front wheel being off the ground. Nobody outwardly panicked, though it would be fair to say we were all pretty shaken.

Brian and Hamish Patrick, who had been following right behind the bus in their own car, got the fright of their lives, feeling totally helpless as they watched the accident. They, and John Ward, and two other local cars which happened upon the scene ferried everybody down to the nearest pub, where we were able to comfort each other over a cuppa and something stronger. The conversation about the accident gradually turned into joking about it, and entomological discussions began to prevail with a game or two of pool for some of us, while we waited for a replacement bus.

On the noticeboard that night appeared a sign - "for those suffering trauma and stress after the bus trip, join our ABCDEFG 'Akaroa Bus Crash Disaster Evacuees Friendship Group'". The next day appeared HIJKLMNOP 'Hey I Just Kicked Loose Mainland Nuts Over Precipice' and the following day again, the rest of the

alphabet appeared as: QRSTUVWXYZ 'Quiet Road Slumping Treacherously Under Various Wheels Xcited You Zoologists'.

Off again on a second conference field trip two days later with the same bus company, we learned that our driver was still pretty shaken, but back out driving. We were also pleased to hear the bus had been lifted out the next day using a crane at the back and a tow truck in the front. Miraculously, the only damage was a broken tail light and a broken number-plate light, no scratches - so it hadn't come to rest on those twiggy shrubs after-all! The back window did not break and would be replaced, as we had retrieved it from down the bank where it slid quite enthusiastically after being knocked out. We felt for our driver who had handled the incident very professionally, and sent him a card, emphasising our support.

Alphabeta club initiation ceremony. Figure in foreground is either examining procoxal openings - or saying a short prayer of thanks!

Australian Entomological Society (AES) - Myrmecia

I have been made aware that the Australian Entomological Society news-bulletin 'Myrmecia' is accessible on the web at: http://www.agric.nsw.gov.au/Hort/ascu/myrmecia. Lawrence Mound has taken over the editorship from the steady hand of Murray Fletcher.

The AES homepage is http://www.uq.edu.au/entomology/aes/intro.html

Annette K. Walker back in NZ - 'Common insects' update.

We welcome Annette back to NZ. She is currently updating her 'Common insects' vols. 1 & 2 in the 'Mobile NZ Nature' series. They will be amalgamated into one book along the style of 'The Reed handbook of common NZ birds', by Kinsky and Robertson. She would like to hear any constructive comments and criticism from members, as well as any updates on distributions and suggestions for useful additions. She notes that other introduced wasp establishments will be included.

Her address is:
Annette K. Walker, 13 Tahi Street, Mapua, Nelson, New Zealand.
Ph: (03) 540 2850, email: annette@ecosail.com

Millennium bug calendar

The Auckland branch has produced a millennium calendar for the year 2000 with coloured illustrations of NZ insects. This, and many other items of entomological interest may be purchased via branch secretaries or direct from Marleen Boyd, 3/11 Brothers Street, New Windsor, Auckland.

Complex spider taxonomy

Lyn Forster

You will remember that the last issue of WETA (vol. 21:2) had a picture of a spider, Meta segmentata on the front cover. It appears, however, that it is a case of mistaken identity, this spider being Zygiella x-notata and not Meta segmentata.

When Ian Andrew brought this spider to us for ID about 18 months ago, he brought only a female and had no information about the web other than it was an orbweb. He hadn't noticed a segment missing nor had he seen any males. It so happened that the females of Zygiella x-notata and Meta segmentata are similar in appearance and, more importantly, they have similar genitalia. Male genitalia are more distinctive and Zygiella builds an orbweb which has a missing sector in the upper region of the orb.

Recently, Mike Fitzgerald found these spiders around his house but with males available and his observation that there was a missing segment in the orbweb, he concluded that they were Zygiella x-notata. His attention was drawn to the photograph in WETA and the article by Ian. However, he soon came to the conclusion that this was Zygiella x-notata too. This was confirmed by Ian from males he found and the missing sector in the web.

So there is a need to correct this identification. We found, amongst our thousands of slides, one of a Zygiella female taken in 1967 when the first record of this spider occurred from Taradale, near Napier. The additional information that Ian produced is correct except that this spider is Zygiella x-notata and that it is not the first record in New Zealand. However, there have been other changes that we are trying to track down. A 100-page paper by Scharff & Coddington in 1977 puts Zygiella in the Araneidae, not the Argiopidae (as per Lockett & Millidge, 1952) or Tetragnathidae (Platnick, 1976) but until we get a reprint of this paper we do not know the basis of this. It is very likely to be based on a cladistic analysis in which case a large number of characters would be involved. Classifications change very rapidly these days with cladistics being the main reason. For example, Meta segmentata is now Metellina segmentata!

It gets more complicated the further we investigate!

A note on Podagritus species at flowers (Hymenoptera: Sphecidae: Crabrononae)

Anthony C. Harris
Otago Museum, Box 6202, Dunedin, New Zealand

Large numbers of Podagritus albipes (Smith), P. cora (Cameron), and lesser numbers of P. carbonicolor (Dalla Torre) often congregate around the flowers of Muehlenbeckia australis (Forst. F.) Meissn. and other plants near nesting areas. On 25 and 26 October 1997, at Caimmuir Motorcamp, Bannockburn, many hundreds of P. albipes and P. cora, males and females, were flying around the flowers of a large Berberis vulgaris L. plant (Berberidaceae) producing a loud humming audible from 4 metres. The owner of the Cairnmuir Camp, Mrs. V. Patterson, informed me that the crabronines fly in very large numbers around that bush when it is in flower every year. Podagritus species, having short tongues, tend to frequent flowers with short corollas, such as Asteraceae, Euphorbiaceae, Polygonaceae and Umbelliferae, in search of nectar. In addition to nectar, honeydew is sometimes taken.

Arthropod families associated with *Drosophila* resources in Canterbury, New Zealand

Simon Hodge[1], Ian Andrew[2], Jo Berry[3], John Marris[1] & Cor J. Vink[1]

1 - Ecology and Entomology Group, PO Box 84, Lincoln University, Canterbury.
2 - Institute of Molecular Biosciences, Massey University, Palmerston North.
3 - Landcare Research, Mount Albert Research Centre, Auckland.

Introduction

Much of the ecological work involving *Drosophila* has used species from this genus as part of some model system, often investigating patterns of distribution, population dynamics and the interactions between a pair, or small guild, of species. These investigations have undisputed value and have helped formulate a number of ideas that now pervade everyday ecological thinking, *e.g.*, competitive exclusion (Ayala, 1966), aggregated distributions (Atkinson & Shorrocks, 1984) and evolutionary responses to natural selection (Arthur & Middlecote, 1984). In nature, however, a wide range of other taxa are associated with resources used by *Drosophila*. These range from vertebrates, such as starlings which feed on fermenting fruit, to other species of arthropods and microorganisms, such as yeasts and moulds.

The aim of this work was not to construct a critique of the over-simplification of laboratory *Drosophila* systems but rather to point out the variety of arthropod taxa that could legitimately be included within them and the range of ecological studies this allows. To do this, we have carried out a survey of *Drosophila* utilizing fermenting fruit as a resource and, in doing so, compiled a list of associated arthropod orders and families.

Methods

Insects were collected at sites around Christchurch and Lincoln between 1997 and 1999. The sites were chosen to represent a variety of different habitat types used by *Drosophila*: an organic orchard, a suburban garden, a native forest remnant, a conifer plantation, around farm buildings, *etc*.

Plastic containers (60 mm high; 40 mm diameter) with yellow plastic lids were used as traps. Nine holes (4 mm diameter) were drilled into the lids to allow entry of animals. The traps were baited with pieces of ripe banana (20 g) and placed on their sides, so that the lids were perpendicular to the ground. The traps were left in the field for approximately 10 days and then collected and returned to the laboratory. Approximately 3500 'trap-days' were completed. The insects collected were preserved in 75% ethanol.

Results & Discussion

Eight species of Drosophilidae were collected in the traps (Table 1), the most frequently encountered and abundant species being *D. immigrans* and *D. pseudoobscura*. All of the species collected were listed by Harrison (1958) with the exception of *D. pseudoobscura*, which is a species native to the midwest of the USA but has been recorded in a number of North Island localities (Lambert & McLea, 1983; Moore & Chambers, 1991).

Of the other arthropod families collected (Table 2), some will tend to be intrinsically linked to *Drosophila* whereas others should be classified as 'tourists', having no real role in system organisation (*e.g.*, Curculionidae). Most of the Hymenoptera collected are dipteran parasitoids and can have major effects on drosophilid mortality (see Carton *et al.*, 1986). Ants (Formicidae) have been recorded as preying on *Drosophila* larvae (Lewis & Worthen, 1992) and, along with the arachnids and staphylinid beetles, could also affect the success of dipteran populations. Whether these families of dipteran predators are systematically attracted to the fruit as a probable prey-rich site or are opportunists, exploiting the shelter and increased humidity of the trap, requires clarification (see Hodge & Vink, *in press*).

Adults of families such as the Nitidulidae and larvae of some dipteran families (*e.g.,* Anisopodidae & Heleomyzidae) will feed on the fruit and thus tend to compete with *Drosophila* larvae for the resource. Members of other families, such as the Leiodidae, Corticariidae, Phoridae and Psychodidae, are associated with rotting matter in general and may also use the fruit as a breeding resource. The elucidation of which of the families collected are consistent users of rotting fruit and actually interact with the drosophilids (or each other) will require more systematic investigation and inevitably require a higher level of taxonomic resolution.

Investigations of drosophilid 'communities' have already included some fairly disparate taxonomic groups and incorporated a number of different trophic levels or competitors (Carton *et al.*, 1986; Worthern, 1988; Michailides *et al.*, 1992; Hodge, & Arthur, 1997). We believe the arthropods found on rotting fruit provide excellent opportunities for the study of fundamental ecological processes. The system is easily replicated, open to experimental manipulation and can easily be extrapolated from the laboratory to the field. The patterns of population distribution, life histories and population dynamics offer a range of single taxa studies. By combining various members of different families or trophic levels, a myriad of scenarios can be developed to examine the effects of colonization patterns and interspecific interactions on community structure.

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Table 1. List of species of Drosophilidae found on banana baits in Canterbury, New Zealand.

Drosophila funebris (Fabricius), *D. hydei* Sturtevant, *D. immigrans* Sturtevant
D. melanogaster Meigen, *D. neozealandica*, *D. pseudoobscura* Frolova
D. simulans Sturtevant, *Scaptomyza elmoi* Takada

Table 2. List of arthropod orders and families collected in association with *Drosophila* in banana-baited traps in Canterbury.

Coleoptera	Corylophidae
	Curculionidae
	Corticariidae
	Leiodidae
	Nitidulidae
	Staphylinidae
Collembola	
Dermaptera	Forficulidae
Diptera	Anisopodidae
	Anthomyiidae
	Chironomidae
	Chloropidae
	Ephydridae
	Heleomyzidae
	Phoridae
	Psychodidae
	Scatopsidae
	Sciaridae
	Sphaeroceridae
Hymenoptera	Bethylidae
	Braconidae
	Diapriidae
	Encyrtidae
	Eulophidae
	Figitidae
	Formicidae
	Ichneumonidae
	Pteromalidae
Acari	
Araneae	Anapidae
	Linyphiidae
	Lycosidae
	Salticidae
	Theridiidae
Opiliones	Phalangiidae

New records of vagrant and newly established Lepidoptera in New Zealand

Brian Patrick, Otago Museum, Box 6202, Dunedin

Intensive light trapping coupled with opportunistic events have produced many new records of vagrant and newly established Lepidoptera in New Zealand in recent years. Many of the records are clearly part of one climatic event that brought large numbers of both species and individuals to our shores in the latter part of 1998. The other records are chance finds within New Zealand or range extensions within New Zealand of newly established species. Many of the species are spectacular additions to our endemic fauna. Unless stated, all the records are by Hamish and Brian Patrick. All the records are backed by voucher specimens that are stored dry in the collection of the Otago Museum.

1. Climatic Event

During the period late October to January 1998-1999, many Lepidoptera presumably of Australian origin, were found in North West Nelson in the coastal area between Anatori and Sandhill Creeks. The following nine species were recorded at mercury vapour light;

Heliothis punctigera Wallengren several found

Achaea janata (L.) one only

Speiredonia spectans (Guenee) one only

Agrotis infusa (Boisduval) several found; also on western Otago mountains during February and March

Athetis tenuis (Butler) many found

Hellula hydralis Guenee one also found by day

Cynthia kershawi McCoy many seen and caught; painted lady butterflies were also seen and captured in Malborough and Otago during this period.

Agrotis munda Walker several found

Dasypodia selenophora Guenee one only

2. Other Records

Utetheisa pulchelloides vaga Jordan

Three specimens were found flying by day on the coast north of the Whakapohai River in south Westland on 16 March 1998. Two specimens from the Taranaki coast (Opunake and Pihama) on 16 November 1992 and 25 February 1999. The later record by Giselle Rowe.

One specimen from Bull Creek, South Otago, coastal area, on 3 April 1993 by Pat Enright.

Tyria jacobaeae (L.)
One specimen at Cape Campbell, Marlborough, on 2 December 1998 by Marie McConway.
Common at White Rock, coastal Wairarapa, 14 November 1996

Achaea janata (L.)
One adult found freshly dead on snow at Homer Tunnel, northern Fiordland in February 1996 at 1000m.

Hippotion celerio L.
One specimen found on board a boat off the Poor Knights in early July 1999 by Phil Bendle. Excellent condition.

Hymenia recurvalis (F.)
One specimen at a coastal site at Motueka NN, 3 Novemder 1998.

Cydia succedana
Several were flying by day over gorse at Karioitahi Beach, west of Waiuku Ak on 8 May 1999 by the author and Robert Hoare. This tortricid has been introduced over the past five years as part of a control programme for gorse.

Thysanoplusia orichalcea (F.)
One specimen in May 1989 at Dunearn, Central Southland by Mervyn Jukes.
One male found freshly emerged in Dunedin with pupa, on 15 May 1999 by Helen Parry. Appeared to have feed on a daisy pot plant("Garden Mums")purchased from The Warehouse, who state that it came originally from the North Island. One specimen from Wanganui on 11 May 1995 by John Barkla. All these records are an extension of range since the species first arrived in New Zealand in 1984 and began breeding in 1985. The Otago/Southland records clearly demonstrate that species are continually transported beyond their current breeding range and given the opportunity to establish.

Predation of monarch butterfly larvae by ants.

Corinne H. Watts. Landcare Research, Private bag 3127, Hamilton

In early January 1999, I noticed that the swan plants (*Gomphocarpus physocarpa*) growing in my garden were looking extremely healthy despite the occurrence of Monarch butterflies. The swan plant is the major diet of Monarch butterfly (*Danaus plexippus*) larvae in New Zealand (Gibbs 1980). When closely examined, every swan plant had substantial numbers of a small black ant on them which was subsequently identified as *Technomyrmex albipes* (Fr. Smith) (Hymenoptera) by Jo Berry from Landcare Research.

The white-footed house ant is a cosmopolitan species which is a relatively important domestic pest (Berry, personal communications). I observed the ants crowding around eggs and after hatching occurred, carrying the larvae to their nest.

Other recorded predators of the Monarch butterfly include the preying mantis, European wasp (*Vespula germanica*), ladybird beetle, flat brown soldier bug (*Cermatulus nasalis*) and Tasmanian paper wasp (*Polistes tasmaniensis*) (Gibbs 1994). Although many eggs were being laid on the swan plants few, if any, larvae were surviving past the first instar stage.

To establish whether ant predation was affecting the Monarch butterfly populations on plants, I isolated one plant from ants (using Vaseline) and left four plants as controls. After three weeks the ant-free plant was stripped of its foliage and a number of larva of varying instars were present on the plant. The control plants still had little visible damage and only a few larger larvae were present (possibly having dispersed from the infested plant).

It appears that if Monarch larvae can evade predation past the first instar they become, (1) too large to be carried away by the ants and/or (2) are too toxic to be consumed by *T. albipes.*

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Book review - Pat Dale

The Life-Size Guide to Insects and other Land Invertebrates of New Zealand
by Andrew Crowe : *Penguin.* $29.95

Hooray! Bravo! At last! A beginner's guide to ordinary New Zealand insects and other tiny creatures, that really is helpful to beginners but need not offend the experts!

One of the reasons that New Zealand insects, spiders, etc, lack the large amateur following that such creatures have in Europe and America is that it is such a difficult area for the uninitiated to get into. There are, it is true, some good and intelligible books, (mostly out of print) about New Zealand insects and spiders, but it is hard to get much help from them if you don't know the name or even the

general group of the thing you have before you. Is it a cockroach or is it a beetle, and what's the difference anyway?
Is it already fully developed, or will it grow and change, and if so how much and into what? Quite daunting questions for a harassed schoolteacher to confront when she's trying to get the classroom ready for the morning's programme.

Take heart! Help is at hand. This book will get you started without any expert knowledge. You don't even need to know that little flies never grow into big flies, or that all moths come from caterpillars. All you need is to be able to count legs and wings (if any), and you're in business. In a few minutes with this book you will know with a considerable degree of certainty what it is you're confronted with, where you are likely to find it, and what it is capable of. From there you can send the inquirer to one of the books listed at the back, while you get on with tidying your desk.

Every teacher, whether primary, intermediate or secondary, needs a copy of this book, and so does every caring parent and every curious kid. From the cleverly simple key on pages two and three you can progress straight to the page where the very clear, life-size photograph of the specimen will most likely be. Worms, slugs, mites and centipedes are there too, as well as the insects and spiders. Even if the thing is too small to tell how many legs or wings it might have, all is not lost. There is a guide to the very tiny things, (with magnified photos) too. There is even a guide to the sort of damage that some insects do and the constructions they make, in case you are only presented with the mess after the insect itself has left. It helps if you can read, but the whole system is so well illustrated that you could make quite a lot of progress even with rather limited reading skills.

There is an element of genius in the way Andrew Crowe has put this book together. Many a distracted teacher, parent or gardener, and many an inquiring child, will come upon it with cries of joy and sobs of gratitude. Just the thing for Christmas!

Papers presented at the Entomological Society of New Zealand Conference April 1999, held at the University of Canterbury.

(Abstracts and contact addresses of authors in the proceedings)

Pat Dale. Presidential address - a recipe for salvation (reported in full in the proceedings.).

Andrew, I. Dipteran biodiversity in Manawatu forest and garden habitats.

Bowie, M.H.; Gorton , M.;Wratten, S.D.; Emberson, R.M.; Marris, J.W.M.; Brown, B. Restoration of the invertebrate fauna on Quail Island.

Brockerhoff, E.; Ecroyd, C. Biodiversity in plantation forests: issues and current research

Brown, B.; Emberson, R, Patterson, A. Moths, molecules and morphology.

Brown, J. A survey design for butterflies

Carpenter, A. Ecology of insects in a factory.

Clunie, L. New Zealand's Entomological treasures.

Daly, J.M.; Suckling, D.M.; Gibb, A.R.; Brockerhoff, E. Behavioural and electrophysiological responses of *Arhopalus tristis* (Coleoptera: Cerambycidae) to burnt pine and other stimuli.

Davey, J. Are native species of Lepidoptera protected by the protected natural areas program?

Denholm, P. Responses of ground and litter invertebrates to metal contamination following the application of municipal sewage sludge to two *Pinus radiata* plantations in canterbury (Note: Pat also designed and illustrated the proceedings cover - Ed).

Donovan, B.J. A comprehensive honey bee dance language hypothesis

Evans, A. Invertebrate diversity in New Zealand's indigenous forests

Galloway, T.D. Ectoparasites on passerine birds found dead on the University of canterbury campus, Christchurch, New Zealand.

Griffiths, J. Katipo habitat selection on the Canterbury coast: some preliminary findings.

Green, C.J. Restoration of tree weta to a modified island.

Henderson, R. Host ranges of exotic soft scales in New Zealand.

Herman, T. Biological control agents of *Heliocoverpa armigera* (Hübner) in exotic pine forests of the North Island central plateau.

Hobson, K. Platypus pinhole borers and semiochemistry.

Hodge, S. The diversity of insect assemblages utilising macro-fungi in indigenous and exotic New Zealand forests

Hutcheson, J. Perspectives on biodiversity research

Jones, D. insect community response to exotic wasps (*Vespula vulgaris*) in mixed (*Nothofagus*) forests in South Island, New Zealand.

Macfarlane, R.P. New Zealand Dipterabiogeography and biodiversity: what are the challenges?

Monks, A. General and species-specific concepts of oviposition 'motivation' - a test using diamondback moth.

Paquin, P.;Duperre, N. Patch size effect of remnant native forest on carabid beetles (Coleoptera: Carabidae) diversity.

Patrick, B. Biodiversity of open lowland systems

Shingleton, A. Forest biosecurity: an analysis of the framework in New Zealand.

Thoreau, D. images of type specimens of New Zealand Lepidoptera on CD-ROM

Trewick, S.; Morgan-Richards, M. Genetics for entomologists and systematicists. (1) Mitochondrial DNA & (2) Allozymes.

Watts, C. Revegetating Matiu-somes Island - a beetles perspective.

Poster Titles - Conference 1999

Insect Community response to exotic wasps (Vespula vulgaris) in mixed beech (Nothofagus) forests in South Island, New Zealand. - Dianne C. Jones, N.Z. School of Forestry.

New Zealand's Entomological Treasures - Leonie Clunie, Landcare Research.

Forest Biosecurity: an analysis of the framework in New Zealand. - Anna Shingleton, N.Z. School of Forestry.

Host Ranges of Exotic soft scales in New Zealand. - Rosa Henderson, Landcare Research.

Patch size effect of remnant native forest on New Zealand Carabid beetles (Coleoptera: Carabidae) diversity. - Pierre Paquin and Nadine Duperre, Landcare Research and Universite de Maitre.

The Christchurch "Biosolids to Forests" project: an invertebrate's perspective. - Patricia M. Denholm, N.Z. School of Forestry.

Gelis sp (Hymenoptera: Ichneumonidae) Photo-micrograph. - Klaus Bolte, Canada/Olwyn Green, MAF.

Entomological postgraduate students and their research topics (June 1999).

Massey University: Institute of Natural Resources.
Contact: **Murray Potter,** Private Bag 11222, Palmerston North.

Postgraduate Diploma

Moreno-Falcon, E.R.	Mating behaviour of brownheaded leafroller.

Msc/Mappsci

Bennett, S.	Habitat use, ecology and the effects of predation on *Powelliphanta travseri* snails.

Bleakley, C.	Can tree weta refuges be used as a population monitoring tool?
Godfrey, J.	Coleoptera as biological indicators.
He, Xiongzhao	Oviposition and feeding behaviour of *Nysius huttoni* White (Hemiptera: Lygaeidae).
Hutchinson, M.	Biology and movements of carabid beetles in the Manawatu and near Ohakune.
Mauchline, N.	Eucalyptus leafroller behaviour and chemical ecology.
Polglase, M.	A landowner assessment protocol for riparian management prioritisation.
Schnitzler-Salmen,R.	Zorion systematics and biogeography.

PhD

Blackwell, G.	Predator/prey dynamics in Te Urewara National Park.
Brandon, A.	Pollination ecology of New Zealand forget-me-nots.
Fowler, R.	Hyporheic invertebrate communities of North Island rivers.
Jiminez-Perez, A.	Behavioural and chemical ecology of porina moth
Kyi, Aung.	Coupling of density dependent processes in populations of ragwort and ragwort flea beetle.
Munro, V.	The impact of introduced parasitoids on native fauna.
Perrott, J.	Insect-fungal interrelationships.
Standish, R.	Effects of Tradescantia on ecosystem function in lowland forest remnants.

University of Otago: Department of Zoology
Contact: Marj Wright, Departmental administrator

PhD

Brown, Sheena	Ultrastructural analysis of activity-dependent changes in glomerular volume in primary antenno-sensory centres of the brain of the honeybee, *Apis mellifera*.
Galbraith, Lisa	The effects of water quality and hydrological variables on wetland community structure and functioning.
Nisikawa, Usio	The roles of omnivorous crayfish (*Paranephrops zealandicus*) in stream ecosystems.
Olsen, Dean	The Ecological Consequences of Disturbance on the Hyporheic Zone of Stream Ecosystems.
Perk, Chris	Dopimenergic modulation of central olfactory neurons in the developing honey bee.

Sinclair, Brent — The effects of temperature on the biology of New Zealand alpine and Antarctic arthropods.

Thompson, Ross — The effects of riparian logging of exotic pine forest on stream community attributes.

MSC in Zoology

Arbuckle, Chris — Geographic Information System analysis of Fine Scale Patterns of Land Use and Cover in the Taieri River Catchment: relationships with Physicochemical factors and Stream Community Structure.

Leisnhain, Paul — The effect of habitat fragmentation on dispersal patterns in an alpine weta (*Hemideina maori*) metapopulation.

Newton, Glen — Effects on the nesting success of the Southern Crested Grebe: the influence of human recreation and lake manipulation.

Sutherland, Merinda. — Possible influences on the development of glomeruli in the antennal lobes of the brain of the honeybee (*Apis mellifera*).

Thorp, Jamie — The effects of solar radiation quantity and composition on invertebrate drift behaviour.

Williams, Justin — Drift dynamics: the effects of visual vs. non-visual feeding vertebrate predators.

Postgraduate Diploma in Wildlife Management

Murdoch, Trudy — An assessment of abundance and distribution of the Cook Strait Cick Beetle (*Amychus granulatus*) and the development of a monitoring protocol.

BSc Hons

Robertson, Gretchen — The effects of forestry stage on streams in the Wakapuaka catchment, Nelson.

Setiawan, Alvin — The alternative mating behaviour of male alpine weta *Hemideina maori*).

Sutherland, Darin — Distribution of the drift community of the Taieri-Waipori river complex with special regard to mysid shrimp life history.

Diploma of Science

Kuerner, Julia — Structural Plasticity in the Antennal Lobes of the Drone Honey Bee: Is it Age or Activity Dependent?

Uhlmann, Sebastian. — Macroinvertebrate communities in function of landuse.

notes

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Notes For Contributors

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